

## ABSTRACT

An instrumentation system which extends channel-based switched fabric architectures to provide instrumentation signaling functions. The system comprises a chassis including slots for receiving inserted modules. The chassis includes a backplane which provides for inter-module communication, including a channel-based switched fabric bus, such as the InfiniBand bus, and instrumentation signaling lines for instrumentation signaling functions. The signaling lines may include a local bus for adjacent slot communication of analog and/or digital signals, reference clock lines for transmitting system reference clock signals to synchronize operations of inserted modules, a trigger bus including trigger lines which connect to corresponding slots to communicate trigger signals between the inserted modules for synchronizing operations between the modules, and/or a star trigger bus including dedicated trigger lines connecting a star trigger controller slot to each instrumentation slot for communicating precision trigger signals generated by an inserted star trigger controller module to the inserted modules.

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